

PLATE IX.

Striped Tabby, *Felis torquata*.

- Fig. 1. Example of the *Felis sylvestris*-type to be compared with fig. 1, Plate X.
 2. Like the last, but the pattern more spotted.
 3. A partially albino specimen with the spots larger and more widely spaced than in No. 2.
 4. Specimen of the so-called "Ticked" breed, with the spots disintegrated and generally distributed over the body.

(From the Cats' Home, Camden Town.)

PLATE X.

Agriotypes of the Striped Tabby, *F. torquata*.

- Figs. 1 & 2. European Wild Cats, *F. sylvestris*, from Ross-shire in Scotland.
 Figs. 3, 4, 5. Young examples of the South African race of the African Wild Cat, *Felis ocreata caffra*. The pattern is usually more distinct in the young than in the adults of this species. The exact locality of these three specimens is unknown. They were shipped from Cape Colony.

(The camera has emphasised the pattern of the skins depicted on this Plate.)

2. Report on Deaths occurring in the Society's Menagerie during 1906. By C. G. SELIGMANN, M.D., F.Z.S., Pathologist to the Society.

[Received February 19, 1907.]

(Text-figure 61.)

In the annexed table will be found the causes of death so far as they could be discovered of 355 mammals and 283 birds which died in the Society's Gardens, and which were submitted to post-mortem examination during the year 1906. In these mammals and birds no cause of death is stated to have been found in 36 mammals and only one bird, but it must be noted that the number of deaths put down to trauma and exhaustion is much larger than in 1905. This is due, in my opinion, to the important part played by depressed vitality, and in some cases darkness and cold, in bringing about death. The method of classification is the same as that adopted last year*, but two new headings occur, viz. Diseases of the Ductless Glands and Deaths due to Old Age. Possibly two of the deaths among birds attributed to "trauma and exhaustion" really took place owing to the effect of parasites.

The following remarks refer to conditions of special pathological interest occurring in the animals in the Gardens.

Tuberculosis.—It is yet too early to attempt any full appreciation of the effect of thoroughly disinfecting, scraping, and repainting the monkey-house, undertaken early in the year, when the heating arrangements also were altered, but the diminution of deaths from tuberculosis—34 in 1906 against 53 in 1905—is decidedly encouraging. If the figures be expressed as percentages, 21·6 of the total deaths in monkeys were from tuberculosis in 1906 against

* "Note on Deaths occurring in the Society's Gardens during 1905," P. Z. S. 1906 p. 234 *et seq.*

	PRIMATES.	CARNIVORA.	RODENTIA.	UNGULATA.	CHIROPTERA.	MARSUPIALIA.	EDENTATA.	BIRDS.
I. <i>General Diseases.</i>	17	1	1	.....	.....	.....	.....	5
Rickets	4	.....	.....	.....	.....	.....	.....	5
Anaemia	34	1	4	3	.....	.....	.....	6
Gout	6	3	.....	3	.....	1	.....	86
Tuberculosis .....	.....	.....	.....	.....	.....	.....	.....	1
Septicæmia and Pus infectious .....	.....	.....	.....	.....	.....	.....	.....	.....
II. <i>Diseases of the Respiratory System.</i>	.....	.....	.....	.....	.....	.....	.....	.....
Laryngitis .....	.....	1	1	4	.....	.....	.....	.....
Bronchitis	4	.....	.....	.....	.....	.....	.....	.....
Broncho-pneumonia	19	16	6	10	1	.....	1	14
Pneumonia	2	1	1	.....	.....	.....	.....	.....
Pleurisy .....	.....	.....	.....	1	.....	1	.....	.....
Empyema .....	.....	.....	.....	.....	.....	.....	.....	.....
Congestion of Lungs, including Hypo-static congestion	3	3	.....	.....	.....	.....	.....	10
Mycosis .....	.....	.....	.....	.....	.....	.....	.....	21
III. <i>Diseases of the Circulatory System.</i>	.....	.....	.....	.....	.....	.....	.....	.....
Pericarditis	1	1	1	1	.....	.....	.....	.....
Valvular disease of Heart .....	.....	.....	.....	.....	.....	.....	.....	.....
Myocarditis .....	.....	.....	.....	.....	.....	1	.....	.....
Arterial disease .....	.....	4	.....	.....	.....	.....	.....	.....
IV. <i>Diseases of the Digestive Organs.</i>	.....	.....	.....	.....	.....	.....	.....	.....
Stomatitis	1	.....	.....	.....	.....	.....	.....	.....
Gastritis	1	.....	.....	.....	.....	.....	.....	.....
Gastric Ulcer .....	.....	2	.....	.....	.....	.....	.....	.....
Gastric Hæmorrhage	5	.....	.....	.....	.....	.....	.....	.....
Enteritis	16	4	.....	.....	1	4	1	10
Colitis and Dysentery	11	.....	.....	.....	.....	1	.....	1
Intussusception .....	.....	2	.....	2	.....	.....	.....	.....
Obstruction .....	.....	.....	1	1	.....	.....	1	.....
Peritonitis	1	3	.....	.....	.....	.....	.....	.....
Fibrosis of Liver	1	1	.....	.....	.....	.....	.....	.....
Fatty Liver, including Jaundice	7	3	3	.....	.....	2	.....	.....
V. <i>Diseases of the Urinary System.</i>	.....	.....	.....	.....	.....	.....	.....	.....
Nephritis .....	.....	1	.....	.....	.....	.....	.....	.....
(A) Brain	1	.....	.....	.....	.....	.....	.....	.....
(B) Cord, .....	.....	.....	.....	.....	.....	.....	.....	.....
(C) Peripheral Nerves, .....	.....	.....	.....	.....	.....	.....	.....	.....
VIII. <i>New Growths</i>	.....	1	1	.....	.....	.....	.....	1
IX. <i>Deaths due to Parasites</i> .....	.....	.....	.....	.....	.....	.....	.....	.....
X. <i>Deaths due to Trauma and Exhaustion.</i>	7	27	8	8	1	3	.....	105
XI. <i>Deaths due to Old Age</i> .....	.....	9	.....	4	.....	2	.....	.....
XII. <i>Deaths, Various, unclassified and inter-mediate</i>	15	8	7	6	.....	.....	.....	1
TOTAL	157	92	41	43	3	15	4	283

35.8 in 1905. Assuming that there were about 100 monkeys in the house on January the 1st, 1906, between 16 and 17 per cent. of the inmates of the house have died of tuberculosis during the past year, since the actual number of monkeys received was 105.

My thanks are due to Mr. Pocock for ascertaining the number of admissions during the year, and I am further indebted to him for the estimate of 100 as the number of monkeys in the house in January 1906.

Much attention has been paid to tuberculosis in birds, and certain interesting conclusions concerning avian tuberculosis can be drawn from a study of the material available. It must in the first place be noted that during the past two years about 30 per cent. of all deaths in birds have been due to tuberculosis; and the more the matter is investigated the more obvious it becomes that a very large percentage of the cases of tuberculosis occurring in birds in the Zoological Gardens are the result of infection by the intestine, which can hardly be due to any other cause than the swallowing of particles of contaminated soil while food is being picked up. By far the greater proportion of birds dying of tuberculosis in the Gardens present typical lesions in their spleen and liver, which can only be explained on the hypothesis of an ingestion tuberculosis: sometimes the intestine is affected, but more often this is not the case, and typical tubercular ulceration of the gut in birds dying in the Gardens is rare. But although ulceration of the gut does not frequently take place, enlarged tuberculous glands at the root of the mesentery are by no means uncommon; a condition akin to *tabes mesenterica* of human pathology being set up without obvious damage to the mucous membrane of the gut, but with the addition of lesions in the spleen or liver or both. Even where the intestine is affected, ulceration is rare or slight; comparatively large submucosal nodules being formed over which the villi of the mucous membrane often seem enlarged, so that a curious condition suggestive of multiple closely-set warts is found to occupy the inner surface of the bowel. Sometimes, as in a Vulturine Guinea-fowl (*Acryllium vulturinum*), the whole of the large gut may be thickly studded with these warty growths, which on section are found to contain dense masses of acid-fast bacilli. In other cases the whole of the small gut is similarly affected, as in a Burmese Slaty-headed Parakeet (*Palaeornis* sp.). In the latter case it was interesting to note that there were no lesions in any other abdominal organ or in the thorax, while in the case of the Guinea-fowl there was early tuberculosis of the lung, liver, and spleen.

Pneumonia and Broncho-pneumonia.—No marked improvement in these diseases has followed the cleaning of the monkey-house.

Mycosis.—Reference was made last year to the occurrence of a disease, mycosis, which was due to the invasion of the tissues by a mould, *Aspergillus fumigatus*. This disease is by far commoner in water-fowl than in other birds, and when attacking these its characteristic lesions are usually widely distributed throughout the body-cavity; but a case occurred in an African Buzzard (*Buteo*

desertorum) in which the disease, obviously not very recent, affected only the air-sac and the lung of the right side, there having been no extension of the parasite by continuity or by infection of the blood or lymph stream.

Cardiac Failure.—It has been noted in the case of Ostriches, Rheas, and Cassowaries, as well as some of the larger Storks kept

Text-fig. 61.



Aorta of Tiger, showing several aneurysms.

in the Gardens, that their hearts after death are usually extremely flabby, while the subpericardial fat may be replaced by a loose-

meshed œdematous tissue; so that probably cardiac failure is the direct cause of death of many of these birds, the condition perhaps being due to lack of exercise. One case of particular interest as bearing out this view has occurred during the past year. While some Zebras were being moved into the new enclosure in the neighbourhood of the Seal pond, an Emu (*Dromæus nova-hollandiæ*), so placed as to be able to see what was happening, became extremely excited, and running round its paddock either struck the railings and collapsed against these or else collapsed and fell against the railings. In any case it could hardly have been injured by the blow, since its feathers were not damaged or its skin torn. On picking it up it was found to be quite dead, but at the post-mortem examination no sign of disease could be found in the brain, or abdominal organs, nor was the heart notably flabby.

Arterial Disease.—The aorta showing many aneurysms of an old Tigress, which had lived in the Gardens for 13½ years, was shown at one of the evening meetings of the Society, and a brief note upon the condition appeared in the ‘Proceedings’*. An illustration has since been prepared which is reproduced in text-fig. 61, and shows the unusual condition of the vessel, the previous description of which may be quoted here:—“The aorta shows advanced arterial disease, most pronounced in the descending aorta, where there is marked atheroma and where, in a length of about 180 mm., there are 14 aneurysmal swellings varying in size from that of a pea to that of a fair-sized plum. The two largest swellings, the walls of which are of stony hardness, occur close together on opposite sides of the artery.” Arterial disease, though not common in the animals in confinement in the Gardens, cannot be said to be rare, whereas in wild animals this disease is generally considered to be very rare. Perhaps an interesting parallel may be drawn in this respect between man under civilised conditions and animals in confinement. In the former arterial disease is of course common, but there is considerable evidence against its occurrence among certain people but just emerging from the Stone Age.

Gastric Ulcer.—The experience of this and last year seems to show that if gastric ulcers are not entirely confined to the Carnivora and Marsupialia, they are at least most common in these orders, since of a total of nine cases four occurred in Carnivora and five in Marsupialia. A young Ocelot (*Felis pardalis*) presented the lesions of this disease in a particularly interesting form. On opening the belly, part of the colon looked darker than usual, and it was found that this and the rectum were full of dark semi-digested blood; there were many small recent hæmorrhages in the stomach, over some of these the mucosa was destroyed but the ulcers had not penetrated deeply. In the duodenum there were, however, sixteen orifices, all more or less circular, and varying in size from that of the head of a large pin to that of a threepenny-bit. One of the largest of these extended

* P. Z. S. 1906, p. 634.

as deeply as the serous coat, the others were less deep and involved only the mucosa and a part of the muscular walls of the gut. The Marsupials with gastric ulcer were all herbivorous.

Perforation of the Uterus.—An instance of this unusual accident occurred in a bitch of the North-African Jackal (*Canis anthus*). The mammary glands betokened recent activity, and on opening the abdomen the uterus projected well above the pelvis; there was general peritonitis and the uterus itself was dark and intensely congested. Within it lay a dead and extremely offensive fetus, while a small circular perforation existed in the uterine wall just above the cervix on the left side, and it was apparently due to leakage through this hole that peritonitis had set in.

New Growths.—The rarity of new growths referred to in last year's note is confirmed by this year's post-mortem examinations on a larger number of animals. Only four cases occurred; two of these, both in mammals, were carcinomata and presented no unusual features; but the third case, a Bear, had multiple small angiomas of the liver, none bigger than a sixpenny-bit, which cannot have exerted any evil effect on the health of the animal.

The last case occurred in a Chilian Pintail (*Dafila spinicauda*) alleged to have been bred in the menagerie and to be 26 years old. On opening the bird a mass the size of a turkey's egg was seen occupying the right flank in the front of the belly; it was not adherent to the intestine or other organs but was enclosed within a thin, loose capsule resembling peritoneum within which, with the mass, were the supra-renals, which were not affected. The mass could not be traced to any organ, but seemed to arise at the root of the mesentery; no testes could be found, although the trachea was of the normal male type; there was a white mass about the size of a filbert in the right lobe of the liver, and both kidneys were whitish and much enlarged. Microscopically it was seen that the main mass was structurally a carcinoma, as was that in the liver, and both these masses resembled the much enlarged kidneys which were themselves carcinomatous.

My thanks are due to Mr. S. G. Shattock for the diagnosis of this remarkable case, which it seems must be classed as an example of diffuse carcinomatous growth in both kidneys with secondary masses in the liver and glands at the root of the mesentery.

While considering the occurrence of new growths in birds, allusion may be made to two very interesting conditions which have recently come under my notice. The subject of the first of these was a domestic fowl belonging to Dr. R. N. Salaman* which died suddenly. On opening the belly cavity this was found to be full of blood, and the liver was found to be diffusely angiomas. The second condition occurred in a Sparrow examined by Dr. A. Wilson* in the course of certain physiological work. On opening the skull a spherical mass about the size of a pea was seen

* My thanks are due also to these gentlemen for allowing me to refer to their specimens.

to press upon the right half of the cerebellum, which it had to some extent excavated. This mass was enclosed in a sheath of pia mater continuous with that over the posterior part of the right cerebral hemisphere. Dr. Wilson thought that the spherical mass might at one time have been joined to the cerebral hemisphere, but of this there was no direct evidence. Microscopically the tumour mass contains true nerve-cells, and so is an example of an extremely rare condition.

3. On a peculiarly Abnormal Specimen of Turbot.

By J. T. CUNNINGHAM, M.A., F.Z.S.

[Received January 23, 1907.]

(Plate XI.*)

The specimen here described was sent to me by Dr. E. J. Allen, Director of the Marine Biological Laboratory, Plymouth, in the beginning of December 1906, with a request that I should examine and describe it. With the fish was a normal specimen and two letters referring to them—one from Mr. John D. Enys, the other from Miss Olivia L. Fox. Mr. Enys' letter is dated Nov. 3, 1906, and states that Miss Fox had then alive in a glass globe two small Turbot caught on the sands at Polzeth, near the Doom Bar at Padstow, on the north coast of Cornwall; that the abnormal fish was dark on the under side and white on the upper. Miss Fox's letter states that she had had the fish about a month, and that the upper side "was becoming pigmented" since she first obtained it.

The specimen is 4.4 cm. in length and presents a condition which, so far as I am aware, has never previously been observed or described in flat-fish of any species. With respect to the position of the eyes, the fish is a reversed specimen—that is to say, both eyes are on the right side, whereas normally in Turbot they are on the left. With respect to colour, on the contrary the specimen partially resembles a normal Turbot. The right side is almost entirely unpigmented; the greater part of the left side is coloured like a normal Turbot. The pigmentation does not extend uniformly over the whole of the left side, but is absent from the head, and from the anterior part of the dorsal region above the head. On these areas there are only a few scattered black chromatophores. On the right or uncoloured side there are also scattered black chromatophores rather more numerous than on the left side of the head. It is important to note that the head and anterior region of the right side, although not fully pigmented, have more pigment than the rest of that side; between the eyes and around the dorsal eye pigmentation is almost complete.

The number of dorsal fin-rays in the specimen is 65, of the ventral 47. The characteristic tubercles of the adult Turbot are not yet developed, but there are three little projections at the base of each of the dorsal and ventral fin-rays, and also projections

* For explanation of the Plate, see p. 181.